REMARKS

This is in response to the Office Action mailed March 29, 2007, in which the Examiner rejected claims 1-19 and 22, which are the only claims still pending in the application. Applicant has amended independent claims 1, 12 and 19. Reconsideration of the application, as amended, is respectfully requested.

Examiner's Response to Applicant's Arguments

In Section 5 of the Office Action, the Examiner stated "Applicant's arguments dated 3/9/07 have been fully considered but are moot in view of the new grounds of rejection." However, Applicant presented arguments that the Burrows (U.S. Patent No. 6,021,409), Sarukkai et al. (U.S. Patent No. 5,819,220) and Pringle et al. (U.S. Patent No. 6,470,306) cited by the Examiner are unrelated to the present invention in the response mailed 3/9/07, which are relevant to the current claim rejections and were not addressed by the Examiner. Accordingly, Applicant does not agree that the previously presented arguments are "moot in view of the new grounds of rejections" because the Examiner has reapplied the references to the claims of the present application. The arguments presented by Applicant should have been fully addressed by the Examiner including an explanation as to the particular disclosure within the references that teaches the significant modification of the word technique of Burrows, on which portions of the rejections are based.

In the event that the Examiner maintains any of the rejections of the present application, Applicant requests that the Examiner fully rebut all arguments presented by Applicant including an explanation as to why Applicant's arguments are not persuasive and the identification of the particular elements of the cited references that correspond to each element of the claims.

Claim Rejections – 35 U.S.C. §103

In Section 3 of the Office Action, the Examiner rejected claims 1-11, 19 and 22 under 35 U.S.C. §103(a) as being unpatentable over Burrows (U.S. Patent No. 6,021,409) in view of Sarukkai et al. (U.S. Patent No. 5,819,220) and in further view of Poirer et al. (U.S. Patent No. 6,321,372). Applicant respectfully believes that the rejections can be withdrawn for the reasons set forth below.

Of the rejected claims, claims 1 and 19 are in independent form. Claim 1 is directed to a method of building a compressed speech lexicon for use in a speech application. Claim 19 is directed to a compressed speech lexicon builder for building a compressed speech lexicon for use in a speech application.

In rejecting independent claims 1 and 19, the Examiner found Burrows to disclose all of the elements of the claims except that Burrows "teaches the use of the word techniques in an internet environment" rather than "using the word techniques in a speech related application". However, the Examiner found Sarukkai et al. to disclose "using word list techniques in web based speech applications" and concluded that it would have been obvious to adapt the teachings of Burrows into speech related web applications "because it would advantageously tailor the speech enabled sites to specific vocabularies . . . ."

The Examiner also found that the combination of Burrows and Sarukkai et al. fail to disclose the use of the words in a speech lexicon memory. However, the Examiner found Poirer et al. to disclose "the providing of internet information in the form of providing linguistic services that include speech lexicon" and concluded that it would have been obvious to "modify the teachings of the combination of Burrows . . . in view of Sarukkai et al. . . with the use of speech lexicons because it would advantageously be used to provide linguistic services . . . ."

Applicant respectfully believes that there is no motivation to combine the cited references because they bear no relation to each other or the present invention, there is no disclosure in Sarukkai et al. or Poirer et al. relating to any method or technique for transforming the web page indexing method of Burrows to form the invention of claims 1 or 19, and the cited combination fails to disclose all of the elements of the claims.

Burrows discloses a method of parsing and indexing a web page. The subject matter of Burrows has no relation to the present invention. In particular, there are fundamental differences between a speech lexicon and other structures that have similarities to a lexicon. For example, a speech lexicon in the present context contains information related to the pronunciation and/or recognition of a spoken word. This word-dependent information is clearly lacking from the Burrows reference. Further, the Burrows reference makes no mention of word-dependent data for use in speech recognition. Burrows treats items that are not words, but information, such as metawords, as separate words that are indexed along with words parsed from a web page. Thus, the Burrows reference does not disclose anything related to a speech lexicon, nor does it disclose word-dependent data as provided in the claims.

While the Sarukkai et al. reference is directed to a computer system for user provided speech actuation and access to stored information, it simply fails to teach or suggest, or remedy in any way, the deficiencies of the Burrows reference. Sarukkai et al. describe the basics of speech recognition and a method for dealing with out of context words. However, while the Sarukkai et al. reference may relate to speech recognition and web applications as suggested by the Examiner, the reference has nothing whatsoever to do with generating a compressed speech lexicon for use in a speech application. Further, the cited section of Sarukkai et al. (col. 3, lines 39-45) reads as follows:

> It is infeasible to build RGDAGs characterizing very large
> vocabulary spontaneous speech. Accordingly, a need
> remains for a better form of speech interface to a computer, 40
> in particular, one that is adapted to the broad vocabulary
> encountered on the World Wide Web, but able to respond to
> short speakable sequences of words not necessarily found in
> the large textual base of web pages and other Web-accessed
> documents.   45

Nothing in the cited section teaches how to modify the web page indexing method of Burrows to one tailored to speech related applications or provides any motivation for such a modification, as suggested by the Examiner. Therefore, the Applicant respectfully submits that the Sarukkai reference is also inapplicable to the present set of claims, and in any case, does not teach or suggest the limitations set out in the present claims including the claimed word-dependent data.

The cited section of Poirer et al. (col. 8, lines 52-65) reads as follows:

A "linguistic service" is a service that relates to one or more natural languages. Therefore, the broad scope of linguistic services encompasses any language-related opera-
55 tion that a user might request. Examples include tokenization, morphological analysis, part-of-speech tagging or disambiguation, low-level pattern extraction, stemming and lemmatizing, language identification, optical character recognition (OCR), speech recognition, dictionary and
60 lexicon lookup, translation assistance, text extraction, summarization, annotation and glossing, information retrieval, shallow parsing, comprehension assistance, language-related knowledge management, indexation, idiom recognition noun phrase extraction, verb phrase
65 extraction, and various combinations of these services.

However, there is no teaching in the cited section as to how one would modify the web page word indexing method of Burrows as modified by Sarukkai et al. such that the indexed words are used to build a compressed speech lexicon. The mere mention of "lexicon" in Poirer et al. is clearly insufficient to support a *prima facie* case of obviousness against the claims.

The cited unrelated references fail to disclose the significant modifications to the web page word index of Burrows, as suggested by the Examiner, that would be required to form the present invention as described in independent claims 1 and 19. This is primarily due to the fact that none of the references is related to building a compressed speech lexicon for use in a speech application. Thus, not only do the references fail to disclose the claimed invention, but there is no motivation to combine the references in the first place outside of Applicant's disclosure.

In an effort to move prosecution of this case forward, Applicant has amended claims 1 and 19 to further clarify that the invention deals with a compressed speech lexicon for use in a speech application, to which the primary references cited by the Examiner do not relate. In particular, independent claim 1 has been amended to recite "receiving a word list configured for use in the speech application, the word list including a plurality of words, each word in the word list having associated word-dependent data selected from the group consisting of a pronunciation and a part-of-speech . . ." Claim 19 has been amended to recite "a plurality of domain encoders, one domain encoder being associated with each domain in the word list, the domain encoders

being configured to compress the words and the associated word-dependent data selection from the group consisting of a pronunciation and a part-of-speech, to obtain compressed words and compressed word-dependent data . . ."

With regard to claim 1, the cited word list of Burrows (col. 6 line 60-67) is unrelated to a word list "configured for use in the speech application" as provided in claim 1. Moreover, the cited word list of Burrows (i.e., word indexed web pages) does not include "associated word-dependent data selected from the group consisting of a pronunciation and a part-of-speech" for each word in the word list. Rather, the word list of Burrows merely contains a list of the words found in pages 200 that are returned to the browser 20 in response to the request 21. The cited word list of Burrows does not contain a pronunciation or a part of speech for each of the words because the cited word list is unrelated to a word list that is configured for use in a speech application.

Additionally, there is no disclosure in Sarukkai et al. or Poirer et al. of the claimed word list and word-dependent data. Further, neither Sarukkai et al. nor Poirer et al. suggest or teach how one would modify the cited word list of Burrows to be configured for use in the speech application or how one would modify the word list of Burrows to include the claimed word-dependent data.

Accordingly, claim 1 is non-obvious is view of the cited references because the references fail to disclose all of the claimed elements . Additionally, claims 2-11 are allowable in view of the cited references at least due to their dependence from allowable base claim 1. Therefore, Applicant requests that the rejections of claims 1-11 be withdrawn.

In rejecting claim 19, the Examiner found Burrows to teach "'a compressed lexicon....builder' as word list with domain such as attributes (Col. 9 lines 21-29)". The cited section of Burrows provides:

> attributes.
> For example, the page **200** of FIG. 4 can have associated page attributes **250**. Page attributes **250** can include □ADDRESS□ **251**, □DESCRIPTION□ **252**, □SIZE□ **253**, □DATE□ **254**, □FINGERPRINT□ **255**, □TYPE□ 25 **256**, and □END__PAGE□ **257**, for example. The symbol "□," represents one or more characters which cannot be confused with the characters normally found in words, for example "space," "underscore," and "space" (sp__sp).

Clearly, the cited section of Burrows fails to disclose the compressed speech lexicon builder of claim 19 "for building a compressed speech lexicon for use in a speech application based on a word list containing a plurality of domains, the domains including words and word-depend data associated with each of the words". Rather, the cited compressed lexicon builder of Burrows is unrelated to a speech application and the cited attributes do not represent word-dependent data corresponding to that used for speech applications.

Also in rejecting claim 19, the Examiner found Burrows to teach "'a plurality of domain encoders....data' as compressing the word entries based on delta values (Col. 11, line 40-col. 12 line 26)". However, the cited section of Burrows merely discloses a "prefix compressing technique which can be used to map from word 710 to compressed word 720" and "a delta value compressing technique which can be applied to the locations 800 of FIG. 6 . . . and takes advantage of the fact that frequently occurring words such as 'the', 'of', 'in', etc. are close to each other." [Col. 11, lines 41-42 and Col. 11, lines 59-62] Applicant cannot discern the elements of Burrows that correspond to the claimed "plurality of domain encoders" from the information provided by the Examiner. Even if one believes that the cited section of Burrows discloses domain encoders, neither Burrows nor any of the other cited references disclose that such encoders "compress the words and the associated word-depend data selection from the group consisting of a pronunciation and a part of speech, to obtain compressed words [of the plurality of domains] and compressed word-depend data" as provided in claim 19.

Accordingly, Applicant believes that claim 19 is non-obvious in view of the cited references because there is not motivation or suggestion for combining the references outside of Applicant's disclosure and the references fail to disclose all of the claimed elements.

Additionally, claim 22 is non-obvious in view of the cited references at least due to it's dependence on allowable claim 19. Therefore, Applicant requests that the rejections of claims 19 and 22 be withdrawn.

In Section 4 of the Office Action, the Examiner rejected claims 12-18 under 35 U.S.C. §103(a) as being unpatentable over Burrows in view of Pringle et al. (U.S. Patent No. 6,470,306) in further view of Poirer et al. Applicant respectfully believes that the rejections can be withdrawn for the reasons set forth below.

Independent claim 12 is directed to a method of accessing word information related to a word stored in a compressed speech lexicon. In rejecting claim 12, the Examiner found Col. 5, lines 15-35, and Col. 6, lines 17-42 of Burrows as disclosing all of the elements of the claim except for using the apparatus of Burrows for speech lexicon applications or the use of words in a speech lexicon memory. However, the Examiner found these deficiencies of Burrows to be overcome by the teachings of Pringle et al. and Poirer et al. Applicant respectfully disagrees with the Examiner's assessment of the cited references.

Both the Burrows and the Poirer et al. references are unrelated to a compressed speech lexicon and accessing word information related to a word stored in a compressed speech lexicon. The Pringle reference also has nothing to do with a compressed speech lexicon. The Pringle reference is directed to a method and apparatus for translating a document from one language to another language. This is commonly referred to as machine translation and involves natural language processing, but not necessarily speech recognition. The Pringle reference simply does not disclose anything related to a speech application or a compressed speech lexicon. In fact, the process disclosed in Pringle would not be an acceptable process for use on a speech lexicon. Therefore, the Pringle reference simply cannot teach or suggest the present claims, either alone or in combination with any of the other references cited by the Examiner.

More importantly, Pringle et al. fail to teach or suggest the modification of a word index of web pages could be modified or otherwise incorporated into a speech translation system at Col. 2, lines 40-60, as suggested by the Examiner. The cited section provides:

> The automated natural language translation system according to the invention has many advantages over known machine-based translators. After the system of the invention
> 40 automatically selects the best possible translation of the input textual information and provides the user with an output (preferably a Japanese language or Spanish language translation of English-language input text), the user can then interface with the system to edit the displayed translation or
> 45 to obtain alternative translations in an automated fashion. An operator of the automated natural language translation system of the invention can be more productive because the system allows the operator to retain just the portion of the translation that he or she deems acceptable while causing the
> 50 remaining portion to be retranslated automatically. Since this selective retranslation operation is precisely directed at portions that require retranslation, operators are saved the time and tedium of considering potentially large numbers of incorrect, but highly ranked translations. Furthermore,
> 55 because the system allows for arbitrary granularity in translation adjustments, more of the final structure of the translation will usually have been generated by the system. The system thus reduces the potential for human (operator) error and saves time in edits that may involve structural, accord,
> 60 and tense changes. The system efficiently gives operators the fill benefit of its extensive and reliable knowledge of grammar and spelling.

Accordingly, the teaching or suggestion cited by the Examiner as being taught by Pringle et al. is erroneous.

Moreover, none of the cited references discloses "accessing an index to obtain a word location in the compressed speech lexicon that contains information associated with the received word including word-dependent data selected from the group consisting of a pronunciation and a part-of-speech" as provided in claim 12. As mentioned above, Burrows, being unrelated to speech recognition applications, fails to include any word-dependent data used by speech recognition applications including either a pronunciation or a part-of-speech. Further, neither Pringle et al. or Poirer et al. disclose the claimed speech lexicon or a method step of accessing an index to obtain a word location in the speech lexicon, as provided in claim 12.

Accordingly, claim 12 is non-obvious in view of the cited references because there is no motivation to combine the references outside of Applicant's disclosure and they fail to disclose

all of the claimed elements. Additionally, claims 13-18 are allowable in view of the cited references at least due to their dependence on allowable claim 12. Therefore, Applicant requests that the rejections of claims 12-18 be withdrawn.

Conclusion

In view of the above comments and remarks, Applicant believes that the present application is in condition for allowance. Reconsideration and favorable action is respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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